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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/347,689	07/02/1999	GEORGE TYSON TUTTLE	SILA-045	4193

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EXAMINER

SINGH, RAMNANDAN P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 04/10/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/347,689

Applicant(s)

TUTTLE ET AL.

Examiner

Dr. Ramnandan Singh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-34 is/are allowed.
- 6) ☒ Claim(s) 1-24 and 35-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings filed on 02 July 199 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.
2. The drawings are objected because of the following informalities:
Figs. 1, 1A, 1B are prior art [Specification; p. 6, lines 15-20].
Therefore, label Figs. 1, 1A, and 1B as **prior art**.

Specification

3. The specification is objected because of the following informalities:
 - (i) Move Fig. 2A down after Fig. 2 [p. 6, lines 22-23].
 - (ii) On page 18, line 18, "**may seen**". Replace the term "**may seen**" with "**may be seen**".

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 1, 18, and 35 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as

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to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. This is because of the following:

Claim 1 recites " A communication system, comprising:.....

a hookswitch transition signal; and current ramping circuitry coupled to the hookswitch transition signal" on page 22, lines 3-12.

The term "**a hookswitch transition signal**" does not constitute a physical part of the structure of the communication system. Also, the term "**circuitry coupled to the hookswitch transition signal**" is inconsistent, because circuitry cannot be **physically coupled to a signal**. Therefore, one skilled in the art to will not be able to make and/or use the invention.

A similar thing hold for claims 18 and 35.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 10 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim I recites "**may be** coupled to phone line" on p. 22, line 6, line 8. The term "**may be**" is indefinite.

A similar thing hold for claims 10 and 18.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yurgelites [US 5,500,895] in view of either Borle [US 5,801,517] or Clemo [US 5,714,809].

Regarding claims 1-2, Yurgelites teaches a full-duplex communication system, as shown in Figs. 1 and 2, comprising a direct access arrangement (DAA) 22 having an isolation barrier between a telephone line circuit 23 and a user device 23, wherein a hookswitch detector 39 and capacitive isolations 31, 33, 36 and 28 provide a bi-directional communication [Figs. 2-3; col. 3, lines 11-56].

Yurgelites does not teach a current ramping circuit coupled to the hookswitch.

Borle teaches a control circuit for a switch having an inductor, comprising a first input for receiving a current measurement signal proportional to the magnitude of the current in the inductor; the current measurement signal being

compared with a reference current representing the desired current in the inductor, as shown in Fig. 2, the circuit having a processor to determine the timing of switching instances [Abstract; col. 2, line 48 to col. 3, line 19]. Further, I_{BZR} is an integrator for timing out T_{ar} , the duration of time after the current error signal ER has crossed zero moving upward. At the end of the determined time T_{ar} , the power circuit (i.e. telephone circuit) is switched so that the **current will ramp downwards** [col. 9, lines 9-13; col. 8, line 54 to col. 9, line 65].

Clemo teaches a soft switching circuit with a **current mode control**, comprising a semiconductor switch as a principal current and voltage control element. **Current through the switch is monitored during transitions**, and is **converted to a voltage level**. A voltage ramp relative to the voltage applied to the user circuit (i.e. hookswitch) is generated and compared with the current representing voltage level to generate a control signal for controlling the rate of turn On or turn OFF of the semiconductor switch. The voltage ramp of the current controlling switch is controlled by an ON/OFF control voltage level [Abstract; col. 2, lines 53-59; Figs. 1A, 1B, 2-3; col. 7, line 49 to col. 8, lines 49-62; col. 9, lines 16-25; col. 9, lines 55-65; col. 10, lines 48-59].

Yurgelites, Borle, and Clemo are analogous art because they are from a similar problem solving area, viz. communications systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply either the current controlling switch of Clemo or the current control circuit of Borle to the Yurgelites system so as to limit the amount of current suddenly flowing into the circuit [Bottle, col. 1, lines 5-9; Clemo, col. 1, lines 5-17] and provide a gradual increase of current during an OFF-hook state in telephones.

Regarding claim 6, Yurgelites teaches a capacitive isolation barrier having capacitors 54 and 56 [Fig. 3].

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Yurgelites and Borle as applied to claim 1 above, and further in view of Goode et al [US 4,815, 126].

Regarding claim 5, the combination of Yurgelites and Borle does not teach expressly a hookswitch comprising a bipolar transistor.

Goode et al teaches a telephone line switch having a solid state hookswitch controlled by a bipolar transistor [col. 1, lines 9-19].

Yurgelites, Borle, and Goode et al are analogous art because they are from a similar problem solving area, viz. telephonic communications systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply a solid state hook-switch of Goode et al to the combination of the Borle and Yurgelites circuit so as to avoid an expensive mechanically interlocked switch [Goode et al; col. 1, lines 16-19], and provide a smooth ON-hook dialing.

10. Claims 1-4, 7-9, 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hershbarger et al [US 5,654,984] in view of either Borle [US 5,801,517] or Clemo [US 5,714,809].

Regarding claims 1-2, 10, Hershbarger et al teaches a system and method for communications , as shown in Fig. 2, to communicate digital signals cross an isolation barrier. The system comprises a phone line side circuitry 218 coupled to phone lines, 209; and a user side circuitry 219 coupled to the phone line side circuitry through an isolation barrier 208 [Figs. 2, 4; col. 4, line 59 to col. 5, line 44; col. 6, lines 14-41].

Hershbarger et al does not teach a current ramping circuit coupled to the hookswitch.

Borle teaches a control circuit for a switch having an inductor, comprising a first input for receiving a current measurement signal proportional to the magnitude of the current in the inductor; the current measurement signal being compared with a reference current representing the desired current in the inductor, as shown in Fig. 2, the circuit having a processor to determine the timing of switching instances [Abstract; col. 2, line 48 to col. 3, line 19]. Further, I_{BZR} is an integrator for timing out T_{ar} , the duration of time after the current error signal ER has crossed zero moving upward. At the end of the determined time T_{ar} , the power circuit (i.e. telephone circuit) is switched so that the **current will ramp downwards** [col. 9, lines 9-13; col. 8, line 54 to col. 9, line 65].

Clemo teaches a soft switching circuit with a **current mode control**, comprising a semiconductor switch as a principal current and voltage control element. **Current through the switch is monitored during transitions, and is converted to a voltage level.** A voltage ramp relative to the voltage applied to the user circuit (i.e. hookswitch) is generated and compared with the current representing voltage level to generate a control signal for controlling the rate of turn On or turn OFF of the semiconductor switch. The voltage ramp of the current controlling switch is controlled by an ON/OFF control voltage level [Abstract; col. 2, lines 53-59; Figs. 1A, 1B, 2-3; col. 7, line 49 to col. 8, lines 49-62; col. 9, lines 16-25; col. 9, lines 55-65; col. 10, lines 48-59].

Hershbarger et al, Borle, and Clemo are analogous art because they are from a similar problem solving area, viz. communications systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply either the current controlling switch of Clemo or the current control circuit of Borle to the Hershbarger et al system so as to limit the amount of current suddenly flowing into the circuit [Borle, col. 1, lines 5-9; Clemo, col. 1, lines 5-17] and provide a gradual increase of current during an OFF-hook state in telephones.

Regarding claims 3, 7, 12-13, Hershbarger et al teaches a stream generated by a digital sigma delta-modulator (906) before the digital signal are sent across the isolation barrier [Fig. 9].

Regarding claims 4, 8, 11, 14, Hershbarger et al teaches a capacitive isolation barrier 910.

Regarding claim 15, the combination Hershbarger et al teaches using a current ramp, when the switch begins to change from OFF-state to ON-state. At the end of the determined time T_{ar} , the power circuit (i.e. telephone circuit) is switched so that the **current will ramp downwards** [col. 9, lines 9-13; col. 8, line 54 to col. 9, line 65].

Regarding claims 9, 16, 17, the combination of Hershberger et al and Borle teaches receiving a current measurement signal proportional to the magnitude of the current in the inductor; the current measurement signal being compared with a reference current representing the desired current in the inductor; wherein the reference current may be set to a value of less than or equal to 50% of the current drawn. It is well-known in the art that the minimum current drawn from the hookswitch is about 2 mA required for dialling [Borle; Fig. 2].

Allowable Subject Matter

11. Claims 25-34 are allowed.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-0377.

Dr. Ramnandan Singh
Examiner
Art Unit 2644



March 27, 2003



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